Present fission-product recovery and shipping programs at Hanford provide for annual capabilities of 5 megacuries of strontium-90, 1 megacurie of cesium-137, 5 megacuries of cerium-144, and small amounts of promethium-147 and technetium-99. Existing process systems are used for the recovery operations, final encapsulation and some purification steps are performed at Oak Ridge and Quehanna, Pa. Recovery processes are based on sulfate precipitation and D2EHPA extraction for strontium, cerium and the promethium-bearing rare earths and on alumino-silicate exchanging for cesium. Methods for cross-country shipping of megacurie amounts of fission products have been developed, and high safety standards have been established for control of the associated hazards. Strontium and cerium are shipped as precipitates in annular filter casks protected from impact, fire and immersion effects by heavy shielding and a special shock-absorbing structure.

Future production plans are aimed at encapsulating fission products at Hanford as a corollary to waste management. The long-lived, heat-producing strontium-90 and cesium-137 isotopes will be separated from the process wastes, and the residual solutions will be converted, after appropriate aging, to immobilized salt cakes in existing storage tanks. The strontium and cesium will be stored separately or made available for sale. Plans are being developed to establish an encapsulation plant at Hanford that will process and package in final form the strontium and cesium removed from the wastes; cerium, promethium, technetium and other isotopes may also be processed. Thus annual capabilities during the five year period 1968 - 1973 will be 10 megacuries of strontium-90, 10 megacuries of cesium-137, 100 megacuries of cerium-144, 30 megacuries of promethium-147, and kilogram quantities of technetium-99.